Supplementary for

Reduction in vehicular emissions attributable to the Covid-19 lockdown in Shanghai: insights from 5-year monitoring-based machine learning

Meng Wang¹, Yusen Duan², Zhuozhi Zhang¹, Qi Yuan¹, Xinwei Li¹, Shuwen Han¹, Juntao Huo², Jia Chen², Yanfen Lin², Qingyan Fu²,⁎, Tao Wang¹, Junji Cao³,⁴, Shun-cheng Lee¹,

¹Department of Civil and Environmental Engineering, The Hong Kong Polytechnic University, Hung Hom, Hong Kong SAR, China
²Shanghai Environmental Monitoring Center, Shanghai, China
³State Key Laboratory of Loess and Quaternary Geology, Institute of Earth Environment, Chinese Academy of Sciences, Xi’an 710061, China
⁴Key Laboratory of Middle Atmosphere and Global Environment Observation, Institute of Atmospheric Physics, Chinese Academy of Sciences, Beijing 100029, China

Correspondence to: shun-cheng.lee@polyu.edu.hk (S.C. Lee) and qingyanf@sheemc.cn (Q.Y. Fu).

Table S1. Correlation coefficient R between predicted and measured NOx and EC using the random forest model and the multi-regression model.

<table>
<thead>
<tr>
<th></th>
<th>Random Forest</th>
<th>Multi-linear regression</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOx</td>
<td>0.89-0.98</td>
<td>0.48</td>
</tr>
<tr>
<td>EC</td>
<td>0.90-0.98</td>
<td>0.45</td>
</tr>
</tbody>
</table>
Figure S1. The location of Dianshan Lake (DSL) supersite in west Shanghai. Blue lines represent roads. The DSL sampling site is approximately 1 km away from the nearest highways (G318 and G50). The Inset shows the location of the sampling site in China. (The map was created using a Python package of Cartopy)

Figure S2. Wind roses for the period between 2016 and 2019 (left), and the year of 2020 with the Covid-19 lockdown (right).
Figure S3. Averaged diurnal cycle of NOx and EC during the normal years (2016-2019) and 2020 with Covid.

Figure S4. Polar plot of the normalized EC and NOx as a function of wind speed and direction.